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EXAMINER

PATEL, KAUSHIKKUMAR M

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/635,870
Filing Date: August 05, 2003
Appellant(s): SQUIBBS, ROBERT FRANCIS

Robert Popa
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 19, 2007 appealing from the Office action mailed January 18, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,452,544	Hakala et al.	09-2002
6,324,621	Singh et al.	11-2001
2003/0060973 A1	Mathews et al.	03-2003
2003/0115042 A1	Chen et al.	06-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-5, 8, 11, 14-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews et al. (US 2003/0060973 A1) (or Hakala et al. (US 6,452,544 B1)) and further in view of Singh et al. (US 6,324,621 B2).

As per claim 1, Mathews (or Hakala) teaches a method of managing a cache of a mobile device carried by a user, the cache being used for storing items associated with

the locations in real-world space being visited by the user (see Mathews, par. [0003] and [0015], or Hakala, abstract, fig.2, item 260);

(a) receiving an item at the mobile device and initially storing it in an un-degraded form (Mathews, par. [0044] or Hakala, col. 10, line 24, Mathews and Hakala does not teach degrading the cached item inherently teaches initially storing item in an un-degraded form);

Mathews and Hakala fails to teach degrading the item stored in cache. Singh teaches cache system (fig. 1, item 12) with un-degraded and degraded form (col. 3, lines 6-8) and he further teaches upon a predetermined condition degrading the item and storing item in cache (Singh teaches LRU and compression weighted replacement, where victim cache line from uncompressed partition is compressed and stored in compressed partition, col. 3, lines 39-50, col. 4, lines 20-25, Singh further teaches storing prefetched data in uncompressed form (col. 6, lines 60-63), the previously stored item becoming LRU is interpreted as predetermined condition concerning the item).

It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize compression and decompression of cache lines as taught by Singh in the system of Mathews (Hakala) in order to improve cache's size and performance of the system (see Singh, col. 2, lines 17-19).

As per claim 4, Singh teaches replacing (compressing) a victim cache lines using least recently use (LRU) method (col. 3, lines 42-43, col. 4, lines 20-23). The LRU algorithm tracks the items in the cache and removes (compress as per Singh) the item

from cache if the item is not accessed since some time, which inherently teaches degrading item based on time elapsed.

As per claim 5, Singh teaches compressing victim cache line as explained with respect claims 1 and 4 above. The victim cache line is compressed to accommodate a new line fetched from secondary storage, which inherently teaches that there is no space left in the cache and requires data compression.

As per claim 8, Singh teaches cache directory, which keeps track of compressed and uncompressed data and further teaches changing status of the block from uncompressed to compressed form (col. 3, lines 30-39, lines 54-58). Keeping track of status (compressed or uncompressed) of the block inherently teaches a flag (or marker) associated with the cache line.

Claims 11, 14-15 and 18 are also rejected under same rationales as applied to claims 1, 4-5 and 8 above. As Mathews teaches means for storing items associated with real world items and receiving means for receiving an item at the mobile device (par. [0017], [0035]).

Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews et al. (US 2003/0060973 A1) (or Hakala et al. (US 6,452,544 B1)) and Singh et al. (US 6,324,621 B2).

As per claims 3 and 13, Halaka (Mathews) and Singh teach limitations of claims 1 and 11 above, but fail to teach degrading the item based on probability usage of item

with respect to user's progress around the space. Halaka teaches caching items based on user's progress, current location and predicted path (col. 10, lines 24-44). The predictive caching as taught by Halaka inherently means that the data cached ahead of time before user's need has high probability of being accessed within near future. Also as admitted by appellant, caches are of finite size and during the progress of user in physical space there will be a time when cache will be full and require evicting some data from cache to make a space for new incoming data, so it would have been obvious to one having ordinary skill in the art at the time of the invention to degrade the data from cache (as taught by Singh in the system of Halaka with respect to claim 1 above) with the least usage probability (LRU) of the item as user progress through the physical space of Halaka to make a space for new incoming predictive data.

Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews et al. (US 2003/0060973 A1) (or Hakala et al. (US 6,452,544 B1)) and Singh et al. (US 6,324,621 B2) as applied to claim 1, 11 above and further in view of Chen (US 2003/0115042).

As per claims 7 and 17, the combination of Mathews (Halaka) and Singh fails to teach limitation set forth in claims 7 and 17. Chen teaches a method effecting the degradation of the item comprising a sampled media stream by reducing sample rate (Chen par. [0010], teaches compression reducing the bit-rate).

It would have been obvious to one having ordinary skill in the art at the time of the invention to combine Chen with Mathews (Halaka) and Singh, since this feature of

Chen allows for cheaper bit storage and when combined reduces the overall cost of the methods and apparatus of Mathews and Singh (Chen par. 10, lines 1-4).

Allowable Subject Matter

Claims 9, 16 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(10) Response to Argument

Appellant essentially provides one main argument (claims 1 and 11) and one other argument, which is based on grounds of dependency (claims 3-5, 7, 8, 13-15, 17 and 18) (i.e. appellant argues that independent claims are non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious (e.g. see page 4, last paragraph and Issue 2 on page 5 of appeal brief filed on October 19, 2007)).

Under the heading Issue 1, appellant argues that the Examiner's reasoning is self-contradictory on its face by saying that the Examiner's interpretation that the item becoming LRU (least recently used) is the predetermined condition does not support his own view, because an item can become LRU and still not be evicted unless and until new data arrives in the cache.

In response to appellant's argument, the Examiner would like to point out that Examiner is entitled to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28

(Fed. Cir. 1997). See also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) "During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process." Limitations appearing in the specification but not recited in the claim should not be read into claims, claims must be interpreted "in view of specification" without importing limitations from the specification into the claims unnecessarily. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969).

In this case, the claims (e.g. independent claims 1 and 7) recite the limitation "predetermined condition concerning the received item", however the claims do not define a predetermined condition in the way appellant is arguing, as such the claim do not preclude Singh's LRU condition as being predetermined condition, because there are many items in the cache and item becoming LRU is selected for compression as such satisfying the predetermined condition limitation. Also, as argued above, since claims does not explicitly define predetermined condition, the interpretation is done in view of the disclosure and according to appellant's disclosure one of the condition is the LRU condition and further the item can remain in the cache in uncompressed form until space is needed (see, specification page 38 under the heading: Transforming Cached

Items: *"The selection of items to be transformed in this way is preferably done using the same prediction techniques and approaches to using the resulting usage probabilities as discussed above in relation to cache flushing; the timing as when to transformations are done can also be the same as discussed above for cache flushing. Furthermore, in selecting items for transformation, other factors besides usage probability can additionally (or indeed, alternatively) be taken into account; possible other factors include cache free space and time since last access"* (present application specification, page 38, lines 16-28). As discussed above, cache free space is considered to be cache full condition, time since last access can be LRU and one of the cache flushing condition appellant noted is *"simply when space is needed in the cache"* (page 38, lines 11-13). Appellant's disclosure further teaches that *"they can be (item in the cache) retained if there is no need to free up cache space"* (current specification page 35, lines 18-19), i.e. item can become the LRU item in uncompressed cache and remain in the cache as long as no new data arrives (no new space needed) in the cache.

As explained above, appellant's arguments with the heading Issue 2, is mere dependency on non-obviousness of independent claims, as such dependent claims also stands rejected.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kaushik Patel/

Kaushik Patel.

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